

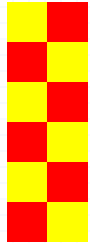


# SCDF

The Life Saving Force

*... for a safer Singapore*

## FSM Briefing 2023



# SCDF Annual Fire Statistics 2022 and Case Studies on Recent Fire Incidents

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Senior Fire Investigator

Fire Investigation Unit

Singapore Civil Defence Force

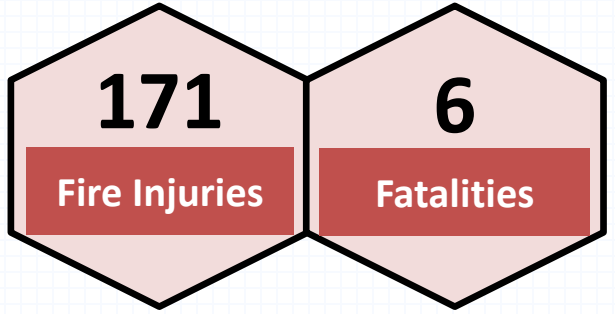
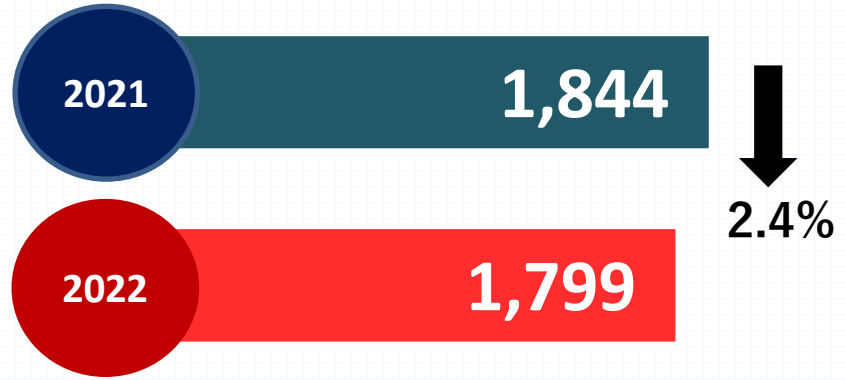


# Scope

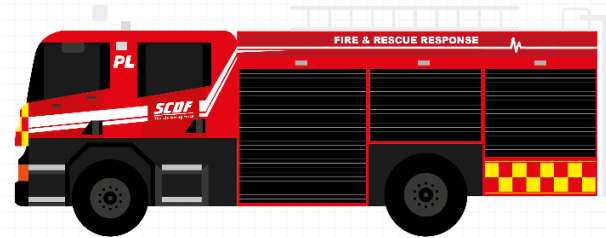
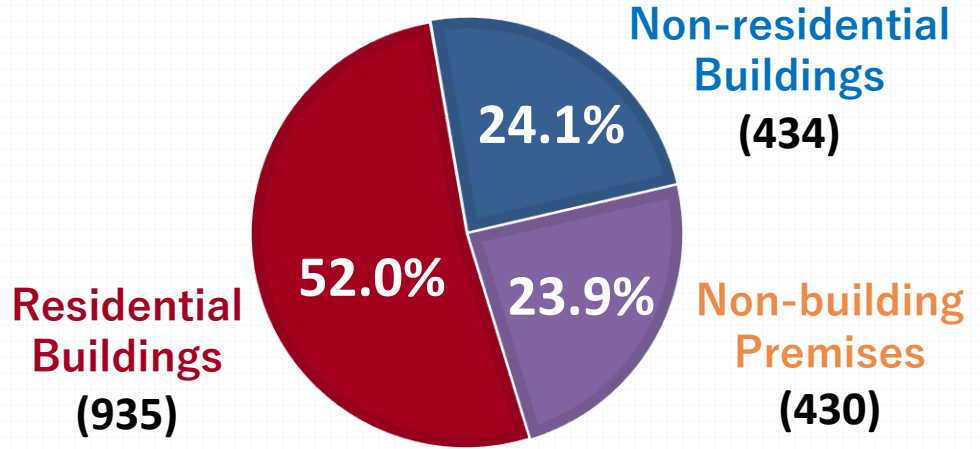
- Annual Fire Statistics for 2022
  - i. Total Fire Calls
  - ii. Breakdown of Fire of Concerns
- Case Studies & Fire Safety Advisories
- Useful Practices (FSM & CERT)



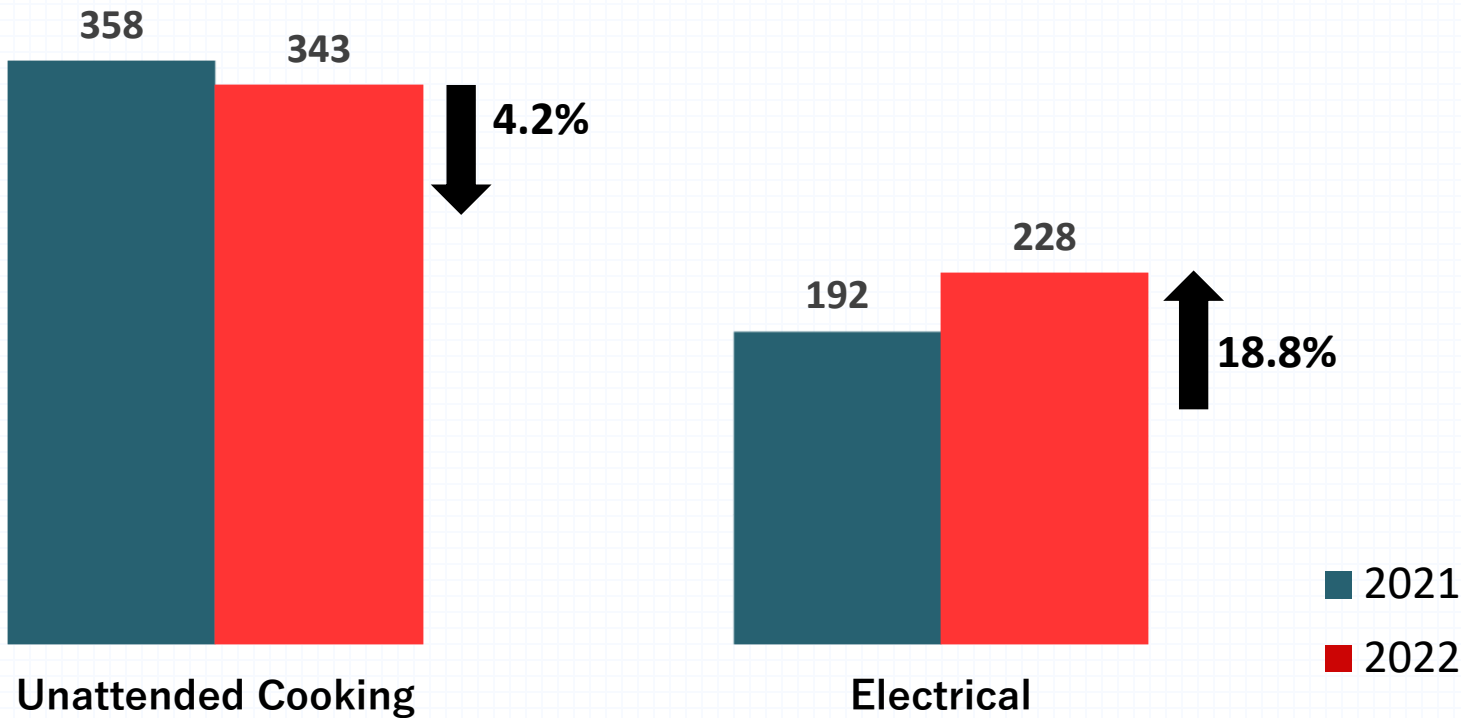
# Total Fire Calls



# Breakdown of Fire Calls (2022)



# Types of Fires of Concerns in Residential Buildings



# HOUSEHOLD FIRE SAFETY CHECKLIST

(ELECTRICAL WIRING & COMPONENTS)

- Ensure all electrical plugs have the Safety Mark
- Switch all equipment and appliances off when not in use
- Ensure all wires are in good condition (i.e. without broken insulation or exposed wiring)
- Lay all wires in the open with none running under rugs or through door openings
- Do not place television sets near combustible materials



## IN COMMON AREAS

- Do not discard items along corridors, lift lobbies, escape passageways and staircases
- Ensure a minimum of 1.2m clearance along escape passageways
- Call the Town Council to arrange for the removal of bulky items



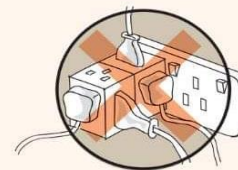
## IN THE KITCHEN

- Never leave cooking unattended as it could result in kitchen fires
- Keep flammable products and combustibles away from heat sources while cooking
- Keep cooking area clean and free of grease

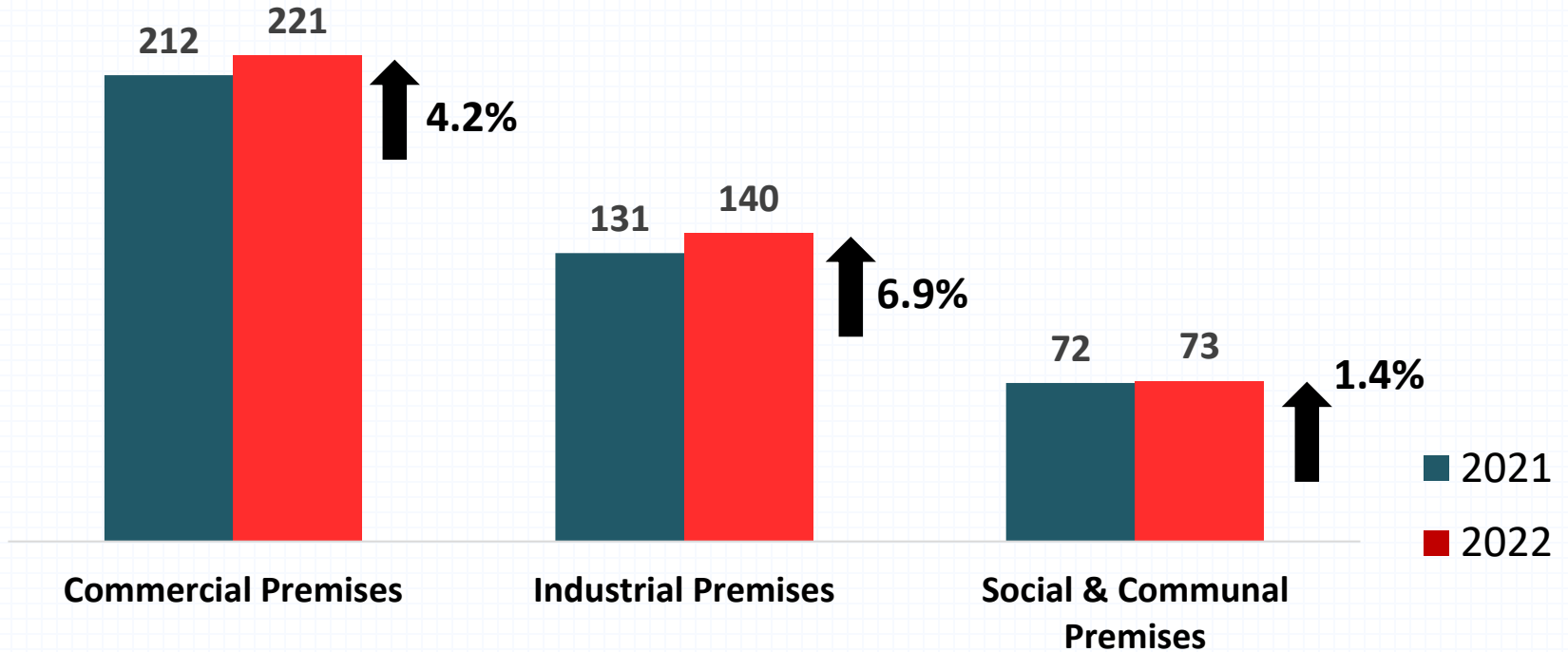


## AT HOME

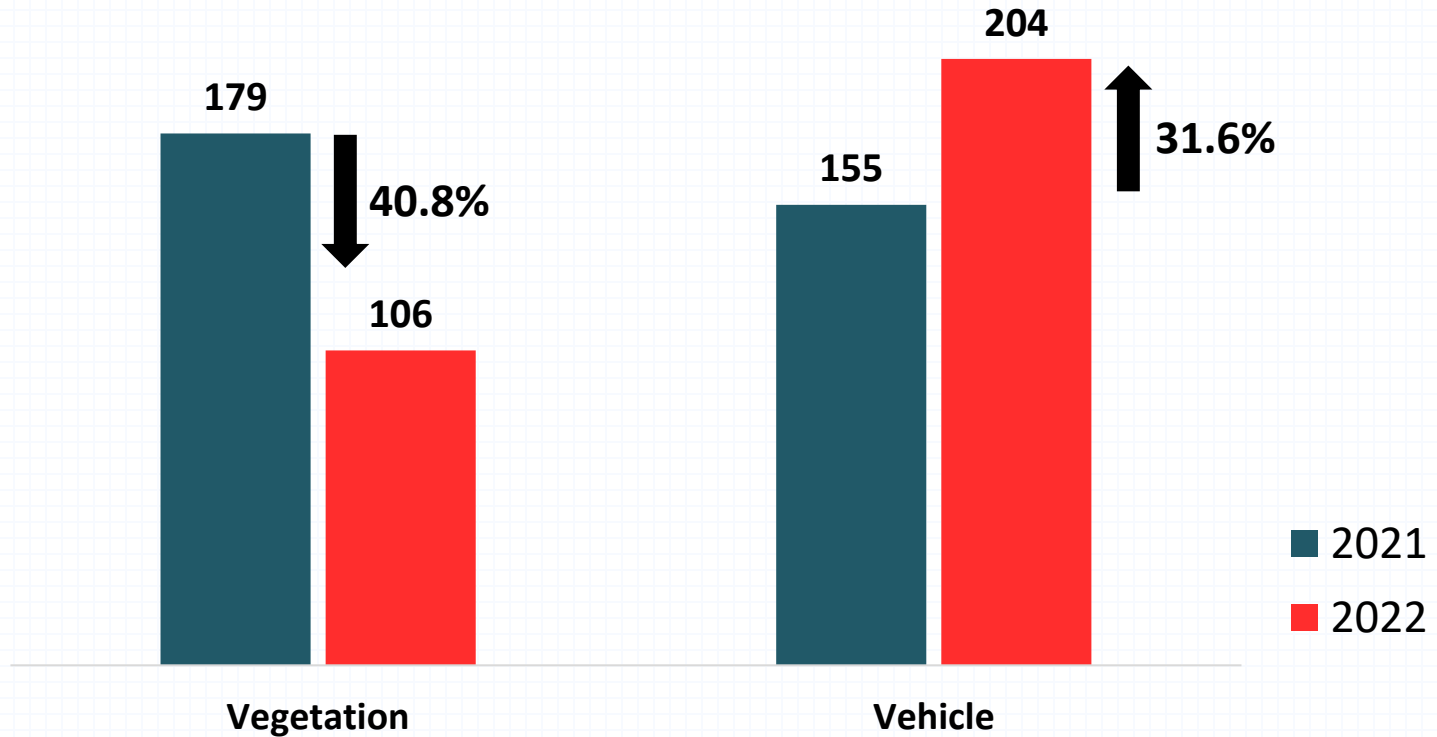
- Never overload electrical outlets
- Always switch off appliances when they are not in use
- Check for broken or exposed wiring; if any are found, replace the wires immediately



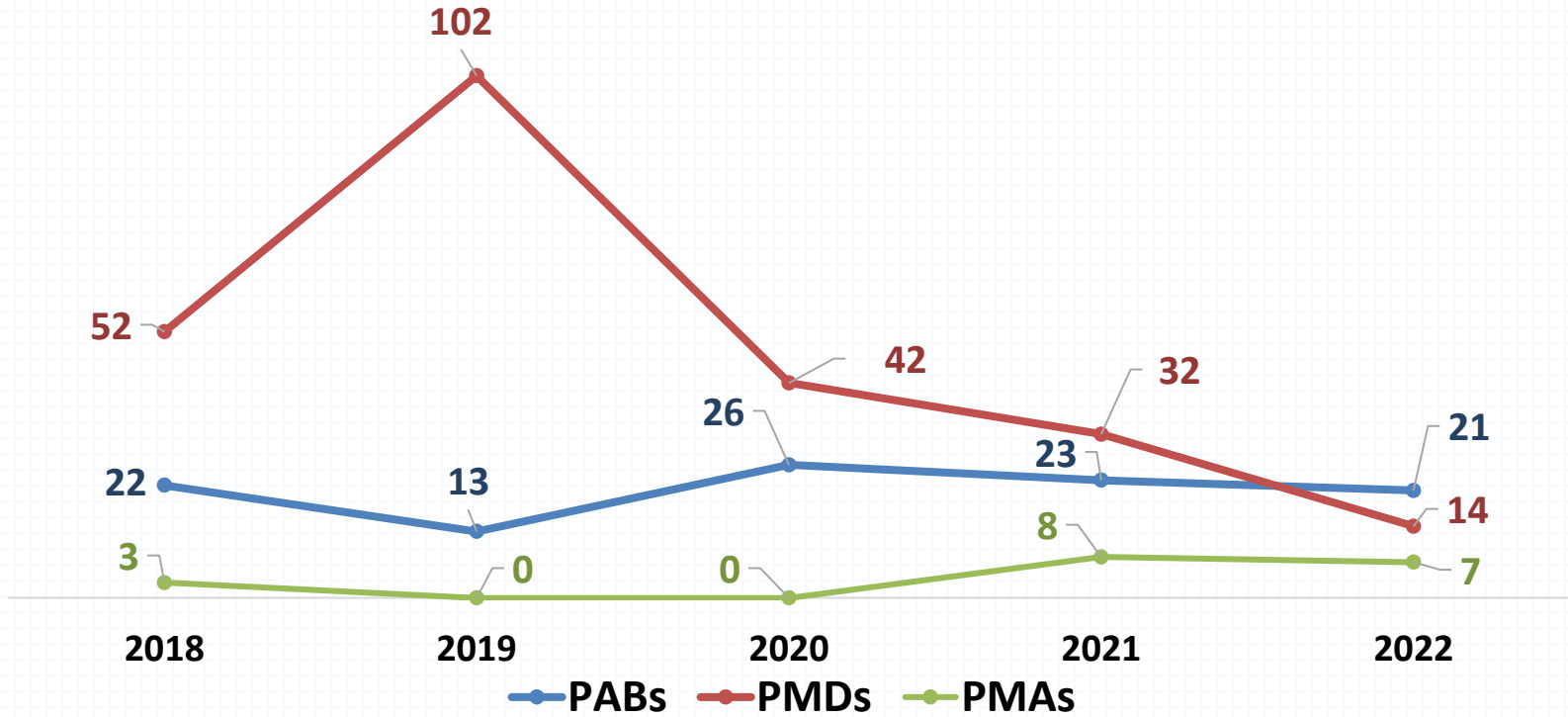
# Breakdown of Fires at Non-Residential Buildings



# Breakdown of Fires at Non-Building Premises



# PAB, PMD and PMA Fires Over The Last 5 Years





FIRE SAFETY TIPS FOR  
**PMDs & PABs**  
Personal Mobility Devices      Power-Assisted Bicycles

**DO**

- Do purchase PABs with the **EN15194** certification and affixed with LTA's **orange seal of approval**
- Do purchase registered PMDs with **UL2272** Certification Mark
- Do use a power adaptor that carries the **Safety Mark** and is recommended by the manufacturer
- Do charge PAB/PMD on a **hard, flat surface** to allow optimal dissipation of heat
- Do regularly **examine batteries for any damage or deformities** such as bloating, corrosion or powdery residue

**DON'T**

- Do not buy or use **non-original batteries**
- Do not charge the PAB/PMD **immediately after use**
- Do not **tamper with, modify, or attempt to repair** a device on your own
- Do not charge a PAB/PMD or its batteries **near combustible materials or along an escape path**
- Do not leave batteries or devices to **charge unattended for an extended period of time**



# Case Studies



# Case Study 1



- The affected premises deals with hazardous waste management.
- The fire involved a distillation tank in a distillation system.
- The cause of fire was due to the accumulation of flammable vapours being ignited by Electrostatic Arc Discharge (ESD).
- The fire was extinguished by SCDF and in-house CERT using one in-situ hose reel, one hose line jet and multiple fire extinguishers.



# Areas Well Done (FSM & CERT)

- FSM & CERT **continued to assist** SCDF by recalling the company's management and retrieving the **Premises Emergency Data (PED)** and **guiding** subsequent SCDF resources arrival.
- FSM & CERT members were forthcoming with **information** during the **fire investigation follow-ups**.



# Fire Safety Advisories

- Companies should practice earthing during transfer operations, including for mobile containers (e.g. IBC and other package containers).
- Wooden pallets should not be placed below the containers to improve the dissipation of electrostatic charges.



# Case Study 2



- The fire involved electrical wirings in the false ceiling of an administrative office.
- The fire was extinguished by CERT using one CO<sub>2</sub> extinguisher.



# Areas Well Done (FSM & CERT)

- FSM & CERT's **quick thinking** (bringing the extinguisher to check out the power trip) allowed them to **swiftly ascertain the source** of fire within the room and **extinguish** it before the arrival of SCDF.
- Through their quick response, the incident was brought **under control rapidly** with **minimal damages** to the property.



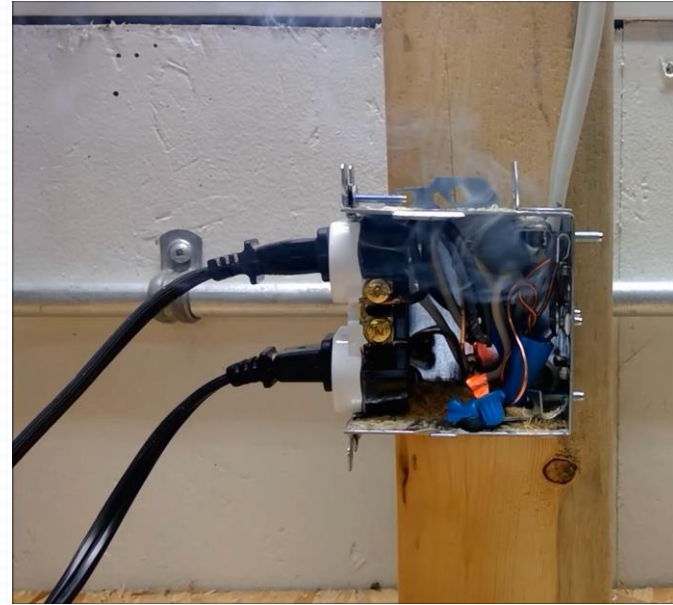


# Fire Safety Advisories

## Loose / Improper Connection

- High resistance causes overheating.
- Arcing may occur with frequent making / breaking of contacts.
- May ignite the conductors or nearby combustibles

**Have a Licensed Electrical Worker (LEW) to Perform Regular Checks / Servicing**



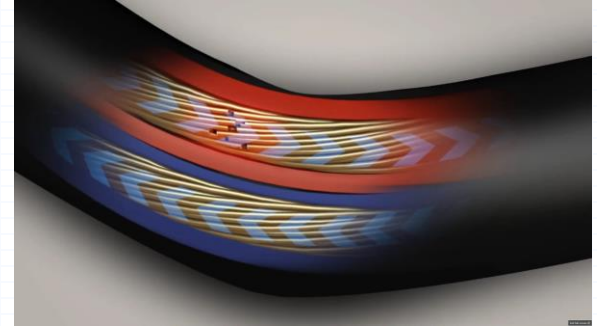


# Fire Safety Advisories

## Arc Fires

- Occurs when: -
  - i. Tight corners/ Pinching
  - ii. Loose plugs
  - iii. Externally damaged
  - iv. Worn out insulation
  - v. Crushed by furniture

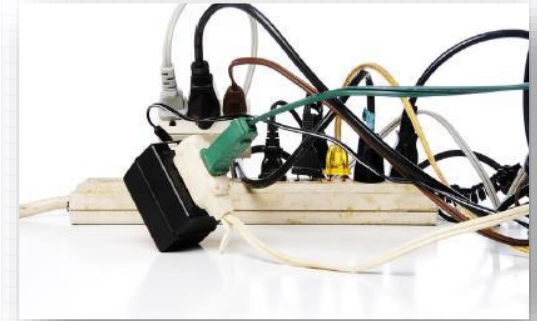
**Check the condition of wires regularly. Frayed wires or cracked cords should be replaced or repaired immediately**



# Fire Safety Advisories

## Overloading

- Occurs when current exceeds rated capacity
- Excessive current can cause heating, melting and insulation damage to the wires/cables, possibly starting a fire.
- May ignite the conductors or nearby combustibles



**Never overload electrical outlets with electrical appliances**



# Useful Practices (FSM & CERT)



# Useful Practices (FSM & CERT)

## ■ Before Fire

- i. Clear and updated Emergency Response Plan (ERP)
- ii. Regular refresher training for the members (as recommended in the National CERT standard)
- iii. Ensure proper checks of In-Place Protection systems such as sprinklers, fire alarms
- iv. Appropriate, adequate and well-maintained equipment e.g., Personal Protective Equipment (PPE), Mitigation, First Aid



# Useful Practices (FSM & CERT)

## ■ During Fire

- i. Prompt assessment of the fire location
- ii. Identification / isolation of hazardous materials (if any) in the vicinity of the fire location
- iii. Boundary cooling (if necessary) to minimize the spread
- iv. Guiding of SCDF crew to the affected area
- v. Sharing of the list of hazardous materials and Material Safety Data Sheet (MSDS)
- vi. Continuing to support SCDF for the firefighting operations



# Useful Practices (FSM & CERT)

## ■ Post Fire

- i. Sharing of the events leading up to the incident
- ii. Actions taken during the fire
- iii. CCTV footages of the affected area
- iv. Sharing of the relevant documents, such as
  - Inventory list
  - Layout plans
  - Electrical plans
  - Recent works
  - Safety protocols
  - Reports of recent issues



# Thank You

